

TWO TYPES OF UNACCUSATIVES: EVIDENCE FROM SLAVIC DEGREE ACHIEVEMENTS

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1 INTRODUCTION: SLAVIC MEETS DEGREE ACHIEVEMENTS

Slavic degree achievements are often discussed through the prism of **thematic vowel contrast**: Medová 2013, Caha & De Clercq & Vanden Wyngaerd 2023 for Czech, Jabłońska 2007 for Polish, Arsenijević & Milosavljević 2021, Milosavljević & Arsenijević 2022, Kovačević & Milosavljević & Simonović 2024 for Serbo-Croatian (SC), Simonović & Mišmaš 2022 for Slovenian, Vyshnevska 2025 for Ukrainian, among others

- (1) a. *zjasnět* ‘to become clear’/*zjasnit* ‘to make clear’ Czech, Caha et al. 2023
b. *głupieć* ‘to get stupid’/*głupić* ‘to make stupid’ Polish, Jabłońska 2007:109
c. *pʹianeti* ‘to become drunk, intoxicated’, *pʹianiti* ‘to intoxicate’ Russian
d. *otupeti* ‘to become blunt, numb’/*otupiti* ‘to make blunt’ Serbo-Croatian
e. *rumeneti* ‘to become yellow’/*rumeniti* ‘to make yellow’ Slovenian, Marvin 2002:100

In all deadjectival verb pairs in (1):

- *e*-verbs are intransitive (and unaccusative)
- *i*-verbs are transitive

In Ukrainian a phonological change turned the former /i/ into /i̇/ and the former /b/, into /i̇/, but otherwise the facts are the same:

- (1) e. *veselity* ‘to become merrier’/*veselyty* ‘to make merrier’ Ukr., Vyshnevska 2025:174

Question: what is the derivational relation (if any), between *e*- and *i*-verbs?

Options (primarily from the non-Slavic literature):

1. Ramchand 2008:90–93, Wyngaerd & De Clercq & Caha 2022, Caha et al. 2023: the transitive is derived from the intransitive
2. Chierchia 2004 (1989), Reinhart 1991, 2016, Levin & Rappaport Hovav 1994, 1995, etc.: the intransitive is derived from the transitive (via decausativization)
3. Harley 1995, 2008, 2012, Doron 2003a, b, Alexiadou +...: independent derivations from the same stem/root

Proposal (cf. Alexiadou & Anagnostopoulou 2004, Alexiadou 2010 for Greek, Labelle 1992, Labelle & Doron 2010, for French, see also Alexiadou & Anagnostopoulou & Schäfer 2015): **minimally two underlying structures for intransitive deadjectival degree achievements:**

- uncausatives: **inchoatives** (*e*-verbs) and mutatives (imperfective *nu*-verbs)
Not all *e*- and *nu*-verbs are degree achievements! But others do not concern us here
- causatives (unmarked) and **decausatives** (*se*-marked intransitives): *i*-verbs
Again, *i*-verbs are not limited to deadjectival degree achievements

Hence we will provide evidence that deadjectival degree achievements need not be limited to only one structure and **argue for non-intersecting structures**

The structure of the talk:

- why deadjectival *i*-verbs are not derived from their intransitive *e*-counterparts
- how *se*-marked intransitive counterparts of deadjectival *i*-verbs are different
- why deadjectival *e*-verbs are not derived from their *i*-counterparts
- the role of *v* in *e*- and *i*-verbs

Takeaway messages:

- new evidence for two different structures that unaccusatives might have
- the semantics of deadjectival change of state

2 WHY *I*-VERBS ARE NOT CAUSATIVES OF *E*-VERBS

Starting point: *i*-verbs do not have the semantics of causativized *e*-verbs (cf. Dyachkov 2021, 2023 for Russian)

Different processes can be evoked by *e*- and *i*-verbs:

- (2) a. Ada je crnila obrve. Serbo-Croatian
Ada be.3SG black-TH_I.PTCP.FSG eyebrows
'Ada was blackening her eyebrows.'
- b. Ada je crnela (od sunca).
Ada be.3SG black-TH_E.PTCP.FSG from sun
'Ada was becoming tanned.'
- c. *Sunce je crnilo Adu.
sun be.3SG black-TH_I.PTCP.NSG Ada.ACC
- (3) a. Ot tainstvennogo lekarstva on molodel/pomolodel/*omolodel. Russian
from mysterious medicine he Ø/PO-/O-young.TH_E.PAST.MSG
'He was becoming/became young(er) from the mysterious drug.'
- b. Tainstvennoe lekarstvo molodilo/omolodilo/*pomolodilo ego.
mysterious medicine Ø/PO-/O-young.TH_E.PAST.MSG him
'The mysterious drug rejuvenated him.'
- c. Korotkaja strižka molodila/*omolodila/*pomolodila ego.
short haircut Ø/PO-/O-young.TH_E.PAST.FSG him
'Short hair was making him look younger.'

The **default perfectivizing prefixes** differ for *e*- and *i*-verbs (for Russian cf. Dyachkov 2021, 2023)

In Russian, where *e*-verbs form a productive class:

- the preferred prefixes for underlyingly unprefixated deadjectival *e*-verbs (ca. 200 in our database) are *po*- (78), *o*-/*ob*- (46), *za*- (43) (with intersections, obviously)
For color *e*-verbs the prefix *za*- systematically correlates with an ingressive interpretation for their essive reading
- for the 13 obligatorily prefixed deadjectival *e*-verbs: *o*-/*ob*- (7), *po*- (2), *za*- (2), *pri*- (1), *u*- (1)
- for their *i*-counterparts (63, manual compilation): *ob*- (24), *po*- (9–11), *za*- (4–5)

In Serbo-Croatian, the contrast between change-of-state *e*- and *i*-verbs is undergoing levelling (see Marelj & Matushansky 2026 for details), but prefix choice is systematically correlated with inchoative vs causatives/decausative uses

Data & Methodology:

- MaCoCu Croatian Web V2 (very large web corpus, hundreds of millions of tokens)
- Targeted, lexically guided extraction: regex search targeting deadjectival change-of-state verbs (primarily *l*-participles) on a predefined set of roots
- 256,696 matches in corpus, 440 retrieved tokens (preloaded concordance subset), and 177 tokens manually annotated (inchoative/causative/*se*-decausative)
What happened with the remaining ±263? They were either non-transparent forms (e.g. MSG *-io* of the past participle, present tense forms, etc.) or the context was not sufficient to determine the use. Therefore, these tokens were excluded due to insufficient transparency for classification
- Dataset is not random or exhaustive; internally valid, not globally representative
- Dataset is strongly skewed toward inchoatives: 143/177 (80.8%) vs 34/177 (19.2%)

Basic distribution: inchoative: 143 (80.8%) & causative + *se*-decausative: 34 (19.2%)

Prefix-semantics correlations (tokens):

- Inchoative set (143 tokens)
 - *po-*: is dominant with 62 tokens (43.4%)
 - *o-*: comes second with 43 tokens (30.1%)
 - *za-*, *s-*, no prefix: (10% or less each)
- Non-inchoative set (34 tokens)
 - *o-*: 21 (62%)
 - *za-*: 13 (38%)
 - *po-*: zero tokens

Core prefix pattern for the dataset:

- *po-* is exclusively inchoative (100% in this dataset)
- *o-* exhibits ‘mixed’ behavior (inchoative + causative/*se*)
- *za-* is skewed toward causative/*se*, minor in inchoative

SC *e-* and *i-* verbs have undergone levelling (decoupling of morphology and semantics) due to reanalysis, resulting in either a) members of thematic pairs becoming interchangeable, or b) extension of one or the other member of the pair to the semantic domain of the other. Consequently, we find *i-* verbs with the prefix *po-* in the language, but (at least) in this dataset, all of the tokens occur with inchoative semantics:

- (4) a. ... zbog srama joj je lice iznenada **pocrvenilo**...
because shame.GEN her.DAT AUX face suddenly red.TH_I.PTCP.FSG
‘Because of shame her face suddenly reddened.’
- b. ... drveni dijelovi zgrade su s vremenom **potamnili**...
wooden parts building.GEN AUX with time dark.TH_I.PTCP.MPL
‘Wooden parts of the building darkened with time.’
- c. ... zbog starosti kosa mu je rano **osijedila**...
because old.age hair him.DAT AUX early gray.TH_I.PTCP.FSG
‘Because of old age his hair turned gray premature.’

For the color-verb domain—the last locus where the historical *e-* vs *i-* contrast remains partially preserved, albeit under clear pressure from levelling—the most common prefix in Serbian for *i-*verbs is *na-*, while for *e-*verbs it is *po-*:

- (5) a. Ada je nacrnila obrve. Serbo-Croatian
 Ada be.3SG NA.black-TH_I.PTCP.FSG eyebrows
 ‘Ada (has) blackened her eyebrows.’
 b. Ada je pocrnela (od sunca).
 Ada be.3SG PO.black-TH_E.PTCP.FSG from sun
 ‘Ada got tanned.’

If *i-*verbs are causatives of *e-*verbs, this variation in prefix choice is unexpected.

Finally, **most Russian *e-*verbs have no corresponding *i-*verbs** (cf. Dyachkov 2018:107–108, 2023):

- (6) a. (po/ob)liseti ‘to become bald(er)’_{PFV/IPFV}, *lisiti Russian
 b. zaxireti/xireti ‘to grow sickly, wither’_{PFV/IPFV}, *xiriti
 c. ržaveti ‘to turn rusty(er)’, *ržaviti

Not all *i-*verbs have *e-*variants either, but this is not unexpected:

- (7) a. bodriti ‘to invigorate, encourage’ (from bodrij ‘cheerful, brisk’), *bodreti Russian
 b. uglubiti ‘to make deeper’_{PFV} (from glubokij ‘deep’), *glubeti/*uglubet
 (8) a. kiseliti ‘to make sour’ (from kisel ‘sour’), *kiseleti Serbo-Croatian
 b. sušiti ‘to dry’ (from sux ‘dry’), *sušeti

But transitive deadjectival *i-*verbs with the semantics of degree achievements may have (non-passive, non-reflexive) *se-*marked unaccusative counterparts

3 MORPHOLOGICALLY MARKED ANTICAUSATIVES (I.E., DECAUSATIVES)

Most deadjectival *i-*causatives have **explicitly marked unaccusative counterparts**, which are productive and transparent:

- (9) a. Tristram je osušio cveće. Serbo-Croatian
 Tristram AUX dry.PFV.PTCP.MSG flowers.COLL.NSG
 ‘Tristram dried up the flowers.’
 b. Cveće se osušilo.
 flower.COLL.NSG SE dry.PFV.PTCP.NSG
 ‘The flowers dried up’
 (10) a. Incident uglubil raskol između stranami. Russian
 incident deepen.PFV.PAST.MSG rift.ACC between countries
 ‘The incident deepened the rift between the countries.’
 b. Ètot raskol uglubilsja blagodarja novomu incidentu.
 this rift.NOM deepen.PFV.PAST.FSG.SE thanks.to new incident
 ‘This rift deepened because of the new incident.’

The *se-*morph also marks middles, passives, reflexives, impersonals, essives, etc.
 Cf. Embick 1998, for Greek: non-active morphology marks the suppression of the external argument

Hence in Slavic there are at least two **morphologically distinct** ways of deriving deadjectival degree achievements:

There's also *nu*-verbs, aka mutatives, but these are unproductive throughout Slavic and mostly non-deadjectival

- *e*-verbs, aka uncausatives
- *i*-verbs, causatives and decausatives

Slavic uncausatives and decausatives have different derivational suffixes

And there can be triplets, obviously with nuances in interpretation:

- (11) a. Nož je o-tup-e-o od upotrebe. Serbo-Croatian, uncausative
 knife is PFX-blunt-TH_E-PAST.MSG from use
 'The knife got blunt from use.'
- b. Nož se o-tup-i-o od upotrebe. decausative
 knife SE PFX-blunt-TH_I-PTCP.MSG from use
 'The knife got blunt from use.'
- c. O-tup-e-l-a sam od bola. uncausative
 PFX-blunt-TH_E-PTCP-FSG am from pain
 'I became numb from pain.'
- d. *O-tup-i-l-a sam (*se) od bola. decausative
 PFX-blunt-TH_I-PTCP-FSG am SE from pain
- (12) a. D'Artanijan čuvstvoval, što tup-e-et. Russian, uncausative
 D'Artagnan felt that blunt-TH_E-PRES.3SG
 'D'Artagnan felt that he was becoming dense.'
- b. Vsiakij instrument ot raboty tup-i-t-s'ia. decausative
 any instrument from work blunt-TH_I-PRES.3SG-SE
 'Any instrument becomes blunt from work.'

Not every deadjectival *i*-causative gives rise to a decausative, but when they do, the semantic link is transparent

Though not necessarily predictable: decausatives can denote non-telic eventualities, as in *kruglit'* 'to make round' vs. *kruglit'sja* 'to become round', but also 'to look round'

4 WHY *E*-VERBS ARE NOT DECAUSATIVES OF *I*-VERBS

Possibility: more than one type of decausativization, with *se*-marking and with the *e*-suffix

Objection: the lack of semantic transparency for *e*-verbs in contrast to decausatives

Furthermore, the unaccusativity of *e*-verbs and decausatives is not identical

Evidence: Serbo-Croatian prenominal past participles

Hoekstra 1984, Ackema & Schoorlemmer 1995, Aljović 2000, Marelj 2004, a.o.: prenominal past participles as an unaccusativity diagnostic:

- (13) a. the fallen guests (unaccusative)
 b. broken window, written book, eaten meal, etc. (transitive)

The prenominal past participle can only track the internal argument:

- unaccusative: the prenominal past participle exists and can be used prenominally
- transitive: likewise
- unergatives do not form past participles that can be used prenominally

Serbo-Croatian: different past-participle forms for transitives and unaccusatives:

- unaccusatives: *l*-participles
- transitives: *n*-participles

- (14) a. *pristig-l-i* *gosti* (unaccusative)
arrive-PTCP-MPL guests
'arrived guests'
- b. *razbij-en-i*/**razbi-l-i* *prozor* (transitive)
break-PTCP-MSG window
'broken window'

Hence Serbo-Croatian tests not only for the status of the argument (internal vs. external), but also for the syntactic structure it is a part of:

- *l*-participles are for the internal arguments of one-place verbs
- *n*-participles are for the internal argument of transitive verbs

Only the *l*-participle is grammatical with the deadjectival *e*-verbs:

- (15) a. *po-rumen-e-l-i*/**porumenj-e-n-i* *obrazi*
PO-blush-TH_E-PTCP-MPL cheeks
'cheeks that have blushed'
- b. *po-žut-e-l-o*/**požuće-n-o* *lišće*
PO-yellow-TH_E-PTCP-MPL leaves.COLL
'leaves that have yellowed'

This implies that deadjectival *e*-verbs are one-place unaccusatives in Serbo-Croatian

On the other hand, deadjectival *i*-verbs allow only for *n*-participles to be used prenominally:

- (16) a. *na-rumenj-en-i*/**na-rumen-e-l-i* *obrazi*
NA-blush.TH-PTCP-MPL cheeks
'cheeks that had been rouged'
- b. *na-crnj-en-e*/**na-crn-e-l-e* *obrve*
NA-black.TH-PTCP-FPL eyebrows
'eyebrows that had been painted black'

Upshot: whereas *e*-verbs pattern with 'run-of-the-mill' unaccusatives like *stići* 'arrive', *i*-verbs pattern with the 'run-of-the-mill' transitive verbs like *razbiti* 'break'.

No comparable argument can be constructed for Russian because it has active past participles, which always track the nominative subject

Other syntactic unaccusativity tests do not distinguish derived and underived unaccusatives
Doron & Labelle 2011: in the Jewish Neo-Aramaic dialect of Urmi the ergative and absolutive agreement marking on the anticausative verb depends on process vs. result interpretation (checked for the verb *break*)

5 INTERMEDIATE SUMMARY

Slavic provides evidence for two types of one-place change-of-state verbs:

- derived from their transitive counterparts (decausative *i*-verbs)
- not derived from transitives (unaccusative *e*-verbs)

The fact that the two types choose different prefixes strongly suggests **different event types**

As does the fact that *i*-(de)causatives are preferentially prefixed, while *e*-unaccusatives are not

Unaccusatives and causatives derived from the same stem are not derivationally linked, in clear contrast with causatives and decausatives

Hence, **some one-place change-of-state verbs are not derived from underlying transitives** (contra Levin & Rappaport Hovav 1994, Chierchia 2004)

So Chierchia's observation that in some dialects/languages *die* and *grow* are SE-marked does not mean that they always are decausative

Our observations join the growing body of literature suggesting that one-place change-of-state verbs come in more than one syntactic structure (see Alexiadou et al. 2015 for cross-linguistic coverage)

French (Labelle & Doron 2010, Doron & Labelle 2011):

- middle (SE-marked) unaccusatives are decausative
- active (unmarked) unaccusatives have a different (position of) *v*

Greek (Alexiadou 2010):

- middle (non-active) unaccusatives are decausative
- active (unmarked) unaccusatives lack Voice

The distinction between morphologically marked (*se*-marked, our *decausative*) and unmarked (our *unaccusative*) one-place change-of-state verbs has been observed for many languages

Unlike elsewhere, **in Slavic the two types of anticausatives are distinguished not only by *se*-marking but also by their thematic suffix**

And morphologically distinct anticausatives generally do not have the same semantics

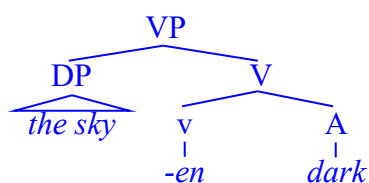
Composition vs. decomposition: what does *v* combine with?

6 TWO VIEWS ON DEADJECTIVAL DEGREE ACHIEVEMENTS

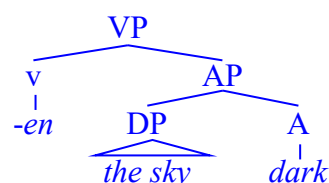
What is the internal argument of an unaccusative (the undergoer) an argument of?

Two views on deadjectival degree achievements attested in the literature:

(17) a. direct composition



b. complex event formation



Alexiadou & Anagnostopoulou & Schäfer 2006, Alexiadou 2010:183: direct verbalization
As the *v*-A constituent is a complex head, its argument is still internal

Harley 2008, 2012, 2017, Ramchand 2008:91: underlying small-clause structure (syntactically represented result state) for change-of-state verbs

6.1 Process vs. result orientation

Two types of anticausatives in French: middle anticausatives (with *se*) and active anticausatives (without *se*) correlating with the presence of a transitive counterpart:

- (18) a. La branche s'est cassée.
the branch SE.is broken
'The branch broke.'
- b. La branche a cassé.
the branch has broken
'The branch broke.'
- c. Le vent a cassé la branche.
the wind has broken the branch
'The wind broke the branch.'

Sources: Zribi-Hertz 1987, Labelle 1992, Legendre & Smolensky 2009, Labelle & Doron 2010, among others

Semantic distinction (Labelle 1992, Legendre & Smolensky 2009):

- active anticausative: asserts the autonomy of the **process**
- middle anticausative: focuses on the attainment of a **result state**

Similar observations for marked and unmarked anticausatives in Italian (Centineo 1995, Folli 2001, 2002, 2014, Cennamo & Jezek 2011, Alexiadou et al. 2015:82–88, Bentley 2024, among others) and in Spanish (Cuervo 2014, Vivanco 2021)

Romance and Germanic verbs do not use prefixation in tandem with perfectivization, the way Slavic languages do

But there is a connection

Zribi-Hertz 1986:341: prefixed verbs are more likely to exhibit a result-oriented reading

6.2 Towards a proposal

Hypothesis: the structure underlying *e*-verbs is that of motion verbs rather than causatives, with the adjectival stem (i.e., the scale) supplying the path:

The notion of the semantic primitive GO introducing the THEME and the PATH comes from Jackendoff 1983 et seq., what we need to assume is that the PATH can be supplied by the adjectival scale

- (19)  *the leaf becoming green*

While a motion event might have a cause, it is not coded in the structure of the verb:

- (20) a. [GO IDENT ([PAGES], [TO IDENT ([PROPERTY YELLOW]])] J1983:195
 b. λe . GO(e) & THEME (*the pages*, e) & PATH (scale YELLOW, e) slightly fancier

Causatives (and decausatives) are more likely to have the SC structure:

Important: the exponent *-i-* does not encode causation (given that *i*-verbs can involve any Vendlerian event-type), this representation is a simplification

- (21)  making the leaf green

This syntactic and semantic representation **entails bieventive telicity**

Yet **the presence of a result state in the semantics of a verb does not entail culmination**

See Minor 2025 on telic verbal roots encoded as imperfectives in Russian

We have come closer to understanding why deadjectival degree achievement causatives prefer prefixes, but nothing we know forces the specification of a result state

And the syntax of prefixation in both structures remains an issue

6.3 Restitutive *again* and the elusive result state

Motivation for the underlying SC: restitutive reading of *again*:

- (22) John opened the door again. Harley 2012
 a. Restitutive: The door had been open before, and John reopened it.
 b. Repetitive: John had opened the door before, and he did it again.

The restitutive reading in (22a) can be explained if the adverbial is adjoined to the SC

Horvath & Siloni 2011, citing Chierchia & McConnell-Ginet 1990: not all deadjectival degree achievement verbs permit the restitutive reading of *again* (e.g., *clean* does not), and this reading is harder for speakers to achieve anyway

Which is not a strong counterargument, since the lack of the restitutive reading may be due to pragmatic factors

Conversely, restitutive *again* may provide a reading that does not appear to be compatible with the semantics of the verb

- (23) Scenario (based on Olshanetsky 2023): Reish Lakish has sold himself to a lanista. His friends, appalled by this, decide: We'll work hard and save money and eventually...

My (vy)kupim ego snova!
 we PFX.buy.1PL him again
 'We will buy him (back) again!'

The result state of the verb *buy* is either that of having been bought or that of being owned

Could (23) evoke the reading of abstract possession (*my daughter*)? If yes, can one *sell* it as well? We think not

But even if we're just talking about restoring possession, **possession is only part of the result state of the verb *buy***: the set of things *bought* is not identical to the set of things *gifted/given*

- (24) Mary really liked that brooch she had to sell. #Let's give or sell it to her again.

Potential problem: non-structural accounts of *again* (e.g., Fabricius-Hansen 2001, Klein 2001) would not predict its interaction with word order

Yet Slavic *again* can be preverbal, which is not obviously compatible with structural accounts

To be continued

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